

Customer No.: 31561
Application No.: 10/064,266
Docket NO.: 7554-US-PA

REMARKS

Present Status of the Application

This Amendment is promptly filed to place the above-captioned case in condition for allowance. Claim 1 has been amended to correct a part of the amendment that was made in the last response. Claim 14 has been reinstated as claim 21, while claim 15 is canceled as intended in the response to the previous office action (paper 2). Claim 22 has been newly added to further limit the claimed subject matter of claim 21. It is believed that no new matter has been added to the application by the amendments made to the claims or otherwise in the application.

Applicant has most respectfully considered the remarks set forth in this Office Action. Regarding the obviousness rejections, it is however strongly believed that the cited references are deficient to adequately teach the claimed features as recited in the amended claims. The reasons that motivate the above position of the Applicant is discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

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Discussion of the Objections

The Office Action rejected claims 13-20 because claim 14 has been incorrectly canceled in the previously response.

In response thereto, Applicants have reinstated claim 14 and canceled claim 15 instead. Reconsideration of the objection is courteously requested.

Discussion of Office Action Rejections

The Office Action rejected claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA hereinafter) and Xing (US 6,492,222).

Claims 1, 8 and 13 stand rejected under 35 U.S.C. 103(a) as purportedly being unpatentable over AAPA and Xing. As described in detail hereinafter, Applicants respectfully assert that AAPA in view of Xing is legally deficient for the purpose of rendering claims 1, 8 and 13 unpatentable for at least the reason that not every element of the claim was taught or suggested by AAPA in view of Xing such that the invention as a whole would have been obvious to one of ordinary skill in the art. In particular, Applicants respectfully assert that neither AAPA nor Xing teaches or suggests "forming a plurality of inter-metal dielectric layers on the substrate, wherein at least one layer among the inter-layer dielectrics and the inter-metal dielectric layers has a silicon carbide layer of about 100Å to about 1000Å thick formed thereon".

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In accordance to the teaching of the present invention, a thin silicon carbide layer is formed on at least one layer of the inter-layer dielectrics and the inter-metal dielectric layer. The thin silicon carbide layer is formed on the inter-layer dielectrics and/or the inter-metal dielectric layers to absorb UV irradiation effectively and block mobile ions in the following processes. In order for the thin silicon carbide layer to absorb UV irradiation effectively, the thin silicon carbide layer must have a certain thickness, for example, between 100 angstroms to 1000 angstroms. Xing teaches forming a thin layer that may comprises silicon carbide between the interlayer dielectric layers (112, 134 and 160) (col. 7, ln 56-65); however, contrary to the Office's assertion, Xing is completely silent about the requisite thickness of the thin layer that is formed between interlayer dielectric layers. The thin film that may be less than 100nm thick as stated in col.9 line 54-55 of Xing is instead a capacitor dielectric 126 which is formed between a top electrode 128 and a bottom electrode 124. Further, Xing teaches the thin capacitor dielectric 126 is formed with a ferro-electric material, such as PZT-lead zirconate titanate, doped PZT with donors (Nb, La, Ta), acceptors (Mn Co, Fe, Ni Al), and/or both, PZT doped and alloyed with SrYiO_3 , BaTiO_3 or CaTiO_3 , strontium bismuth tantalate (SBT) and other layered perovskites such as strontium bismuth niobate tantalate (SBNT), or bismuth titanate; BaTiO_3 , PbTiO_3 , or Bi_2TiO_3 , rather than a silicon carbide material. Accordingly, AAPA and Xing, neither alone nor in combination, fail to teach or suggest a thin layer of silicon carbide of about 100Å to 1000Å is formed on an interlayer dielectrics and/or an inter-metal dielectric layer, in which UV radiation is effectively absorbed without adversely affecting the overall dielectric constant.

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For at least these reasons, Applicant respectfully asserts that claims 1, 8 and 13 and claims 3-7, 10-12 and 15-20 which utilize claims 1, 8 and 13, respectively, as a base claim patentably define over AAPA and Xing. Reconsideration and withdrawal of this rejection on the now pending claims are respectively requested.

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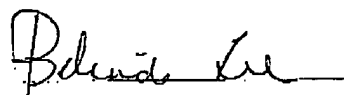
CONCLUSION

For at least the foregoing reasons, it is believed that the presently pending claims 1, 3-8, 10-13, 16-22 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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August 14, 2003

Respectfully submitted,



Belinda Lee

Registration No.: 46,863

Jiang Chyun Intellectual Property Office
7th Floor-1, No. 100
Roosevelt Road, Section 2
Taipei, 100
Taiwan
Tel: 011-886-2-2369-2800
Fax: 011-886-2-2369-7233
Email: belinda@jcipgroup.com.tw
Usa@jcipgroup.com.tw

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